Lake Moomaw
2005

Lake Moomaw is a 2,530 acre impoundment located in Bath and Alleghany Counties, Virginia. Gathright Dam was authorized by the U. S. Congress in 1946 and completed by the U. S. Army Corps of Engineers in 1981. Operation and maintenance of the recreation area was transferred to the U. S. Forest Service in July, 1982. The reservoir was constructed for downstream water quality augmentation, flood control, and recreation. Recreational pool level is at 1,582 feet above sea level and there is over 43 miles of shoreline. Lake Moomaw is surrounded by the 13,482 acre Gathright Wildlife Management Area and thousands of acres owned by the U. S. Forest Service. The lake's unique intake tower consists of nine portals, designed to release water at any level from 12 – 87 feet below recreation pool. This allows for maximizing optimum temperature and flow regimes in Jackson River below Gathright Dam. The average depth of the reservoir is 80 feet, with the maximum depth at 150 feet near the dam.

Lake Moomaw's geographic location and its operational procedure lends itself to thermal stratification in the summer. As much as 60,000 acre-feet of coldwater fisheries habitat is available in later summer for species such as brown and rainbow trout. Coldwater habitat varies annually depending on flow into the lake and downstream release loads. In summer 1993, the Corps of Engineers changed the way they released water out of the impoundment during summer/early fall. The Corps is required to provide 21^0C.water at Covington, 30 km downstream of Gathright Dam, throughout this period. Prior to the trout study, 15^0C. water was located in the water column and portals closest to this temperature were opened. Currently, water from the epilimnion is mixed with cold, anoxic water from the hypolimnion, meeting downstream temperature requirements and preserving summer trout habitat in the lake. Alewives, the primary forage base, also thrive in the lake's two-story environment. Trout are the only sport fish that are stocked annually.

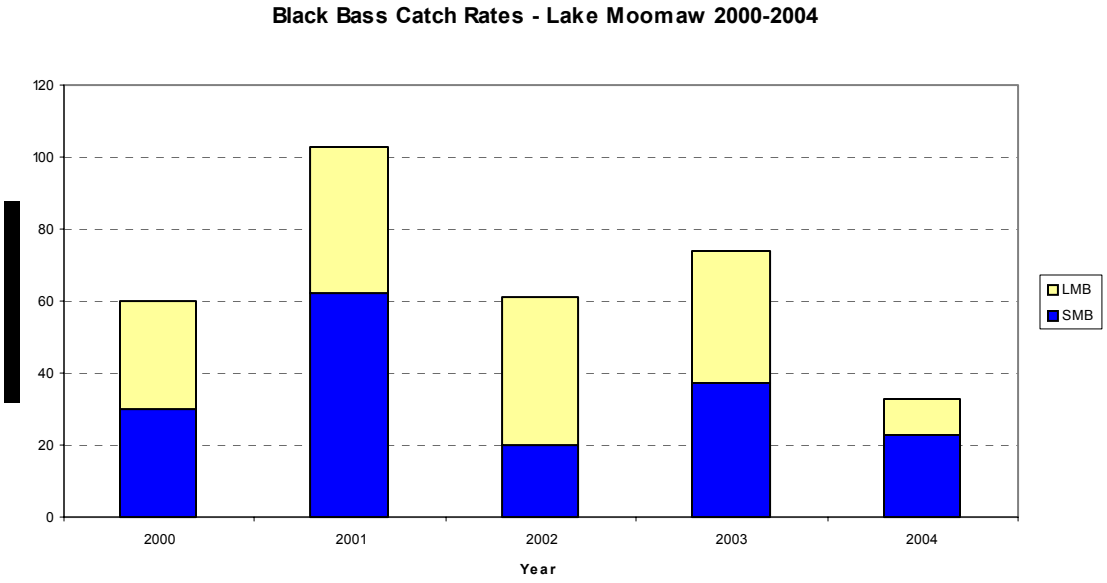
Changes in the physical habitat have focused primarily on black bass populations. Warmwater fish species such as black bass, black crappie, rock bass, sunfish, chain pickerel, channel catfish, and yellow perch reproduce and grow in the flats, drop-offs, brush, and standing timber afforded to them along the lake's shoreline. Common carp found their way into the reservoir through bait introductions in the late 1990's. Artificial habitat such as tire reefs, artificial grass, cedar tree shelters, crappie stakes, pallet structures, log cribs, hinge trees, brush/tree piles, concrete structures, and PVC attractors have been deployed at various times in Lake Moomaw since 1981. Prior to impoundment, the Corps of Engineers left 40 hectares of standing timber in several coves and a few boulder piles in deep sections of the lower lake. Hundreds of stumps were also left along the shoreline, providing exceptional cover/nesting habitat for channel catfish. Addition of physical habitat has been accomplished jointly by DGIF, USFS, and local angling clubs. An inventory of past projects is maintained by USFS at the Warm Springs

Ranger District office. A lake management plan was also jointly developed by DGIF and USFS in 1993.

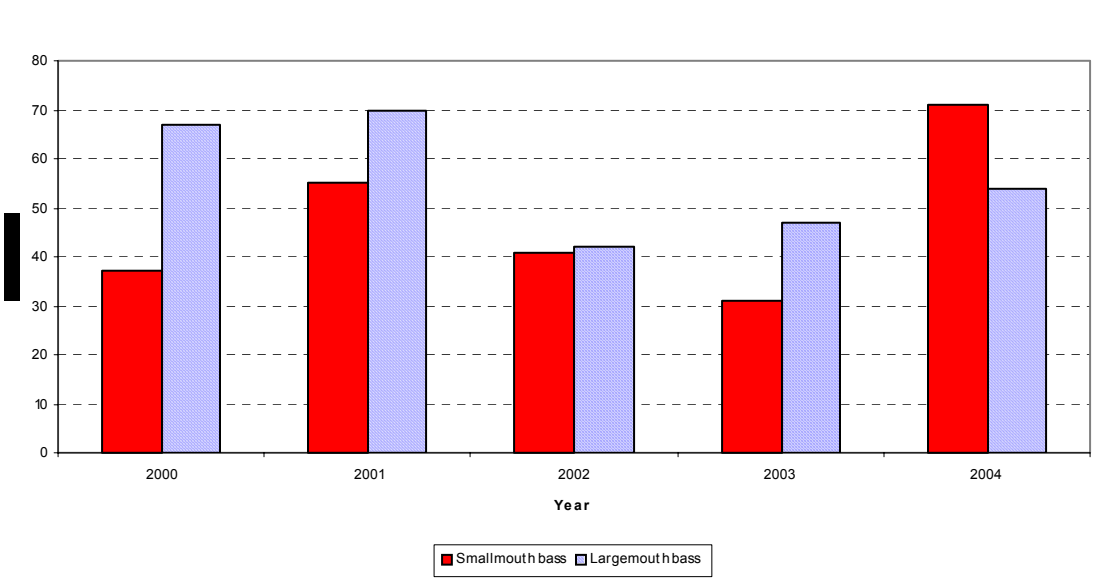
Historically, sport fish populations have been sampled with horizontal gill nets, vertical gill nets, trap nets, hydroacoustics, rotenone, and shoreline electrofishing. Black bass relative abundance is estimated with annual nighttime electrofishing surveys conducted at established stations throughout the lake. Additional black bass(particularly smallmouth bass)data are periodically sampled with fall/winter daytime horizontal gill net sets. Trout and alewives are sampled with vertical gill nets in late summer to evaluate trout condition and to examine spatial distribution in the water column. Black crappie have been periodically targeted with spring or fall trap net sets, but no permanent sampling protocol has been established for this species. Channel catfish, yellow perch, and chain pickerel are collected incidentally with gill nets and by electrofishing. Age and growth data for black bass were analyzed at various intervals from 1987-1997.

Fishing regulations were set years ago and have changed little in the past decade. Originally, five 10-inch trout could be creeled daily. The regulation changed in the 1990's to two 16-inch trout daily, in order to stimulate a trophy fishery. Black bass regulations have remained unchanged since 1982, with an aggregate (smallmouth and largemouth bass) of five per day, 12 inches or larger. Fifty sunfish of any size can be creeled daily and 25 each of rock bass and black crappie of any size can be taken daily. Five chain pickerel daily of any size and 20 channel catfish of any size can be harvested daily. There is no size or creel limit on yellow perch or common carp.

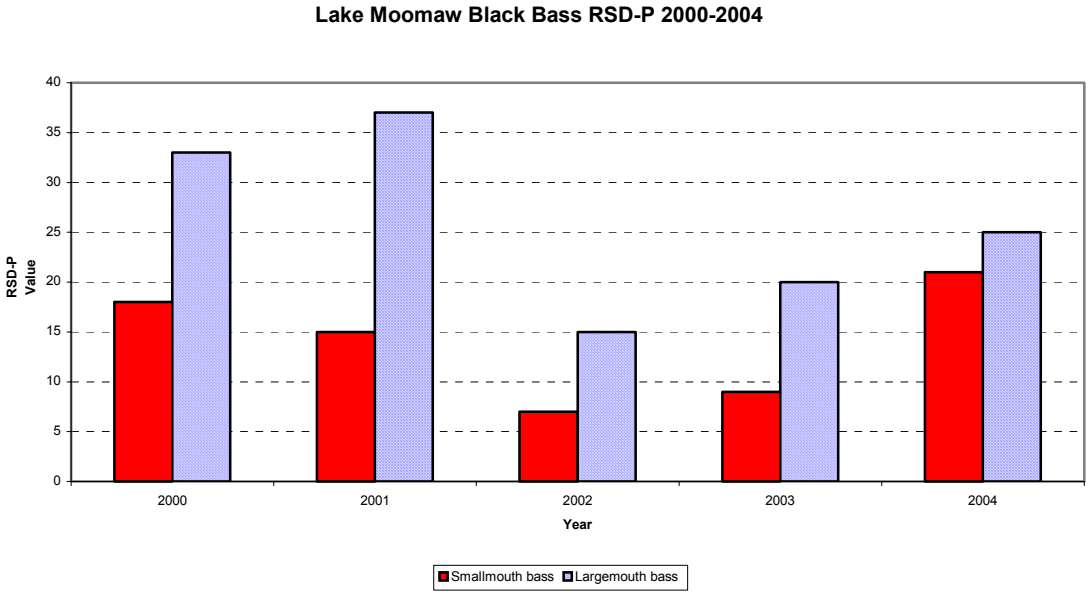
Black bass and trout are two of the most popular species sought by anglers in Lake Moomaw. Black bass consist of smallmouth bass, which resided in Jackson River prior to inundation, and largemouth bass. Certain areas of Lake Moomaw afford themselves to smallmouth bass (rocky ledges, river habitat) rather than the muddy flats that largemouth bass prefer. Take a look at the electrofishing catch rates (number of fish per hour) in the following graph to get an idea of smallmouth and largemouth relative abundance. The average catch rate for the last five years was 66 fish per hour. The 66 fish/hour combination for black bass compares favorably with other mountain reservoirs such as Flannagan (68 fish/hour), South Fork Holston (47 fish per hour), and Claytor Lake (80 fish/hour). In most years, each species makes up roughly half of the catch. Catch rates were down in 2004 due to the late date of the samples and one of the stations (upper) was not done. Generally growth, recruitment, and relative abundance of smallmouth and largemouth bass are consistent with other western Virginia impoundments. The table below shows the catch rates for black bass in Lake Moomaw for the past five years.



The following graph provides a look at how black bass sizes are structured. The Proportional Stock Density is a good way to look at this. Of the smallmouth collected in 2004, over 70% were over 11 inches, while 55% of largemouths were over 12 inches long. These are considered to be the minimum quality-size black bass that are acceptable to anglers.



The next bar graph follows the same idea as the above figure, but notes the percentage of preferred-size smallmouth bass (>14 inches) and largemouth bass (>15 inches). In 2004, one out of every four black bass collected by electrofishing were at least the minimum preferred length. This is considered to be a very good distribution of adult bass in Lake Moomaw.

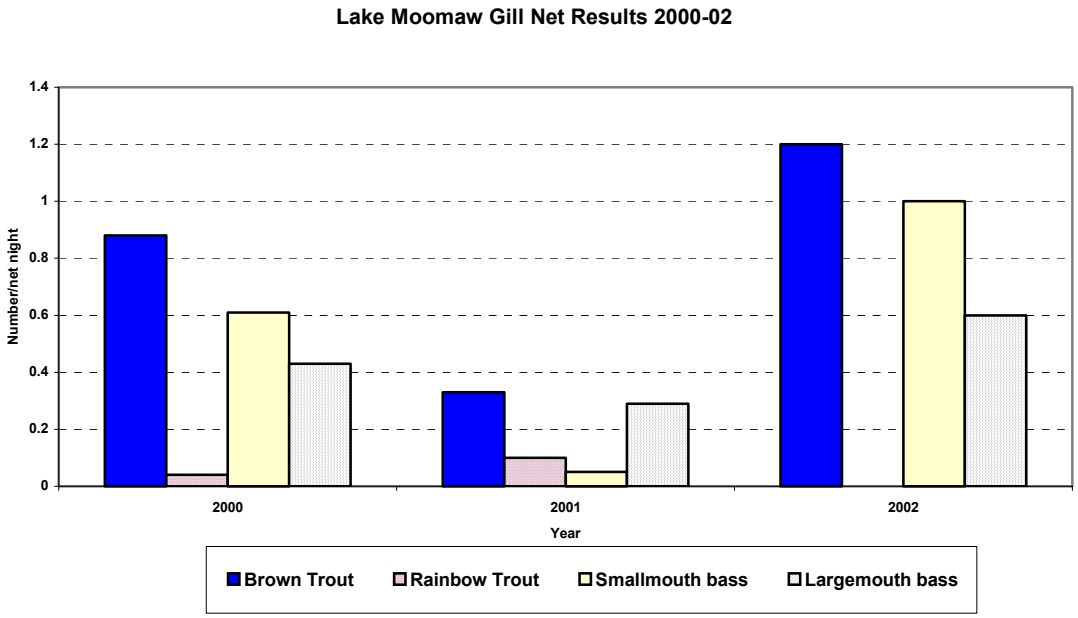


The trout fishery is managed on a "put-and-grow" basis, where advanced fingerlings are stocked annually and allowed to grow on natural food until attaining a quality size (16 inches). Approximately 60,000 brown and rainbow trout are released into Lake Moomaw each winter. Since natural reproduction is limited, stocking is necessary in order to support the coldwater fishery. Trout grow is rapid, with browns reaching 25 inches after three growing seasons. Alewives are the key to the trout fishery. Brown trout can be taken in mid-winter so full of alewives that they emerge from their mouths and have distended bellies. Rainbow trout fare reasonably well in Lake Moomaw, but they take are somewhat older and larger before they switch from insects to alewives. Rainbow trout are of the McConaughy strain, hailing originally from the Nebraska reservoir after which they were named. The Nebraska McConaughys are noted for their long "runs" up the Platte River, so the Lake Moomaw-Jackson River system offer a smaller version of the same type of system. McConaughy rainbows begin to emerge from the lake in fall, but movement upriver occurs all winter long. Stronger runs have been noted in February and fish often make their way miles upstream to Highland County. Reproduction in the Jackson River and some of its tributaries is evident, but not sufficient to curtail lake stocking.

Vertical gillnets were deployed in fall of 2000 and 2001 to target trout and alewives, and horizontal gillnets were used during January, February, and March of 2000-2002 to target trout. The number of gillnet nights are expressed in the table below. Gillnets were not deployed in 2003 and 2004 due to time constraints.

	2000	**2001**	**2002**
Vertical gillnet nights	16	8	0
Horizontal gillnet nights	51	13	5

Catch rates for brown trout varied from 0.33 to 1.2 fish per net night. The 2002 values only represent 5 net nights, so the true density of brown trout is probably best expressed in 2000. Brown trout densities are excellent in Lake Moomaw, as is their size distribution. In 2000, over 95% of the brown trout catch (59 fish) was over 15 inches long. Also, the mean relative weights of brown trout are over 150, indicating a heavy body mass per length of fish. Fish are considered "plump" with relative weights in excess of 100. Rainbow trout do not fare as well as browns do in the lake, but their presence and extraordinary fighting ability make a worthy component to the coldwater fishery. Note in the following bar graph what a small percent of the catch is represented by rainbows. Brown trout are more sedentary and tend to enjoy the confines of the lake, whereas the rainbows like to use Jackson River and Back Creek for migratory purposes. Relative weights for rainbow trout are in the 95-100 range. Smallmouth bass and largemouth bass are incidental bycatches in the gillnets, as are yellow perch and chain pickerel. Alewives were caught in the small mesh vertical gillnets, but not in great numbers. Although they are not well-represented in the gillnet data, large schools of alewives are annually observed during electrofishing. They make up the main prey component of brown trout in Lake Moomaw.



Other popular sport fish that were not represented in this report are black crappie, yellow perch, chain pickerel, bluegill, redear sunfish, and channel catfish. Some of these species were collected during periods of black bass and trout sampling. Except for yellow perch and sunfish, they represent minor, though important, components of the fishery. Their populations seem to be stable, and large adults are frequently encountered during routine sampling. Common carp were introduced by anglers in the 1990's and have exploded in terms of size and numbers throughout the lake.

In summary, the black bass fishery at Lake Moomaw is representative of a western Virginia impoundment. Bass densities and growth are very good for smallmouth bass, and moderate for largemouth bass. Brown trout are abundant, heavy, and a new lake

record was set in 2004: 12 pounds, 4 ounces. Rainbow trout are not as abundant, but add an additional salmonid component to the lake. Sunfish are plentiful and large redears and bluegill are creeled from deep, shady cover. Yellow perch have established themselves as a favorite quarry in early spring for those looking for excellent table fare. The state record yellow perch was creeled from Lake Moomaw. Black crappie are moderately abundant and can be found in the one-pound size range in woody cover. Large chain pickerel are active in early spring and trophy channel catfish are scattered throughout the lake.

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